known to be associated with human disease. Collectively, this calls for a wider use of zebrafish models as a powerful promising model organism for neuroscience and drug discovery research.

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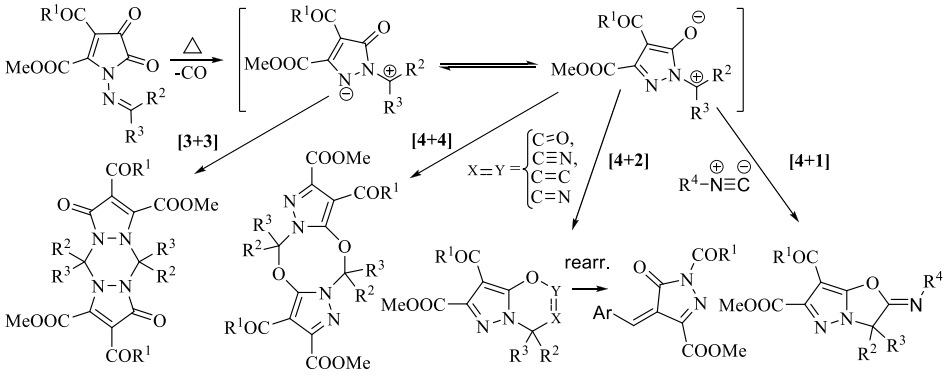
REGIODIVERGENT DIPOLAR CYCLOADDITION BASED ON PYRROLE-2,3-DIONES

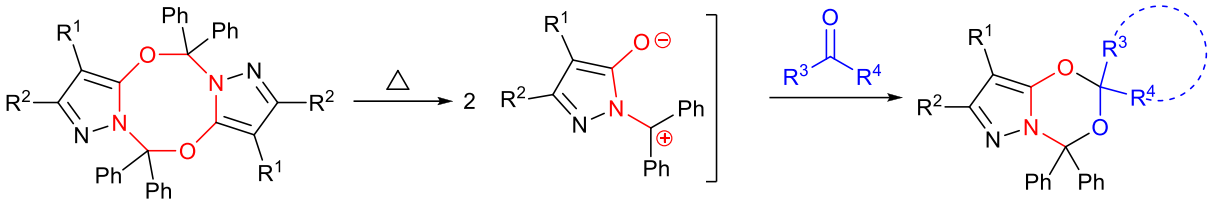
Keywords: 2,3-dihydro-2,3-pyrroldiones, dipolarophiles, dipolar cycload-ditions.

It was previously demonstrated, that thermal decarbonylation of *N*-substituted 2,3-dihydro-2,3-pyrroldiones afforded imidoylketenes, whose chemical behavior largely depends on the nature of substituents at *N*-1.

It was discovered that *N*-(diphenylenamino)pyrrolediones experienced facile CO-extrusion at elevated temperatures and the resulting a zwitterionic dihydropyrazolone species, which can be represented by enolate-iminium 1,4-dipole resonance form. In the absence of dipolarophiles, the products of [4+4]-cyclodimerization – bis(pyrazolo)dioxadiazocines – were formed in high yields. To this end, we generated the ketenes in the presence of alkyl vinyl ethers, aldehydes, ketenes, nitriles and isocyanides targeting products of dipolar cycloadditions.



We further elaborated on the development of various synthetic schemes involving cycloaddition of these unusual 1,4-dipoles. Dipyrazolodioxadiazocines are shelf-stable "ready-to-use" precursors for an in situ generation of enolate-iminium 1,4-dipoles.



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COPPER CATALYZED REACTION OF HYDRAZONES WITH POLYHALOGENATED COMPOUNDS. AN EFFICIENT APPROACH TO ALKENES AND DIAZADIENES*

Keywords: hydrazones, *O*-, *N*-, *S*- and *C*-nucleophiles, catalytic olefination reaction.

Catalytic olefination reaction represents new approach to the preparation of double C=C bond. *N*-unsubstituted hydrazones can be converted into alkenes by treatment with polyhalogenated alkanes in presence of a base and catalytic amounts of copper salts. The reaction has a wide synthetic scope allowing to prepare both alkyl and aryl substituted alkenes, including fluorinated and functionalized ones.

We demonstrated also similar transformation with N-substituted hydrazones, as a result the new carbon-carbon bond forming reaction of *N*-monosubstituted hydrazones with polyhaloalkanes to produce 1,2-diazabuta-1,3-dienes has been developed. This highly efficient copper-catalyzed transformation features a broad scope with regard to all reaction components, as well as the possibility to perform the process in a much more convenient one-pot fashion starting with easily available